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C20-A-AA-AEI-CHST-BM-TT-MET-  
MNG-AM-WD-AI-AG-104

**7004**

**BOARD DIPLOMA EXAMINATION, (C-20)**

**JUNE/JULY—2022**

**FIRST YEAR (COMMON) EXAMINATION**

**ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES**

*Time : 3 hours ]*

*[ Total Marks : 80*

**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define unit cell. Write the structure and coordination number of NaCl, CsCl.
2. Define normality. Write mathematical formula and units for it.
3. What is ionic product of water? Write value of ionic product of water at 25 °C.
4. What is salt bridge? How is it prepared? What is its use?
5. Define hard water. Write causes for temporary hardness.
6. Write the method of preparation and uses of Teflon.
7. Define the fuel. Write the composition and uses of natural gas.
8. Write the health aspects of usage of soft drinks.
9. Write three causes for air pollution.
10. Define pollutants, receptor and dissolved oxygen.

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**PART—B**

8×5=40

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **eight** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Write the differences between orbit and an orbital and draw the shapes of s, p, d orbitals.

**(OR)**

- (b) State and explain Aufbau principle and Hund's rule.

12. (a) Define solution. Classify solutions based on physical state with examples.

**(OR)**

- (b) Define pH. Calculate the pH of a solution containing 4 gm of NaOH in a liter of solution.

13. (a) Explain the purification of copper by electrolytic refining.

**(OR)**

- (b) State Faraday's laws of electrolysis.

14. (a) Explain composition concentration and stress cells with neat diagrams.

**(OR)**

- (b) Write short notes on (i) chlorination and (ii) coagulation.

15. (a) Define vulcanization of rubber. Explain with chemical equation.

**(OR)**

- (b) Explain greenhouse effect and acid rain.

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**PART—C**

10×1=10

- Instructions :** (1) Answer the following question.  
(2) The question carries **ten** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 16.** Define polymerization reaction. Describe about addition and condensation polymerization reactions with suitable examples.

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